MAV Series

A/V MATRIX SWITCHERS FOR COMPOSITE VIDEO, S-VIDEO, AND STEREO AUDIO

- 19 models with I/O sizes from 4x4 to 8x8
- 150 MHz (-3 dB) video bandwidth, fully loaded
- Switches composite video, S-video, and stereo audio
- Video genlock and vertical interval switching
- Quad standard video compatibility
- Balanced and unbalanced audio compatibility
- Audio input gain & attenuation
- Audio breakaway
- QuickSwitch Front Panel Controller (QS-FPC™)
- Global presets for storing commonly used switching configurations
- RS-232 with Extron's Simple Instruction Set (SIS™)
- Optional IR remote control (most models)
- Windows®-based control program

MAV 88 AV RCA

The Extron MAV Series matrix switchers provide versatile switching solutions for video system applications that route composite video and S-video signals, with stereo audio. The MAV Series is ideal for museums, university classrooms, sports bars and restaurants, videoconference and distance learning facilities, video production suites, corporate boardrooms and meeting facilities, and many residential entertainment installations.

DESCRIPTION

The Extron **MAV Series** of A/V Matrix Switchers is designed to suit the requirements of many smaller video and audio switching systems. Available in fixed I/O sizes from 4x4 to 8x8 and housed in rugged, compact 1U rack-mountable enclosures, the MAV Series is capable of routing several composite video or S-video, and stereo audio signals, to multiple outputs.

MAV Series matrix switchers are ideal solutions for a variety of video routing applications, including corporate boardrooms, command and control centers, museums, university classrooms, sports bars and other themed entertainment venues, videoconferencing rooms, and residential media installations.

Video Features

All MAV Series switchers feature 150 MHz (-3 dB) video bandwidth, fully loaded, ensuring signal quality in even the most complex system designs. In addition, all models are capable of switching NTSC 3.58, NTSC 4.43, PAL, and SECAM video sources for worldwide capability. MAV Series switchers also feature video genlock and vertical interval switching for smooth, seamless transitions when switching between synchronous video sources.

Audio Features

The MAV Series includes matrix switchers capable of switching balanced or unbalanced stereo audio signals, in both Audio Follow and Audio Breakaway modes. Audio input gain and attenuation can be adjusted at the front panel or through serial control, eliminating noticeable differences in audio level when switching between inputs. Many models are also available with convenient RCA connectors, for switching unbalanced stereo audio.

Control Features

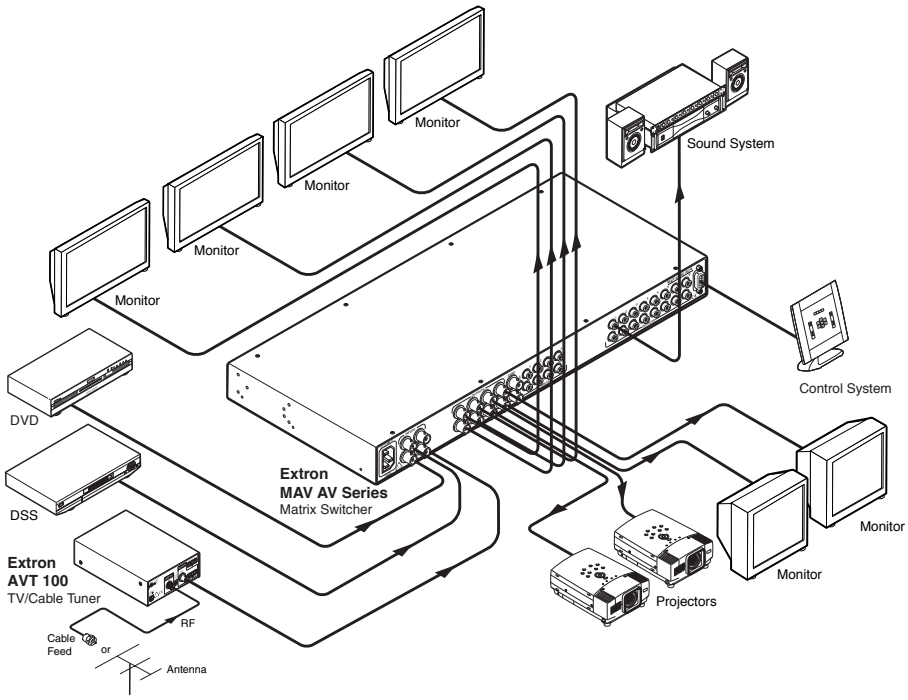
Each of the 19 available MAV Series models comes standard with RS-232 control capability, as well as Extron's exclusive QuickSwitch Front Panel Controller (QS-FPC™), which allows for simple, touch-of-a-button input and output selection directly from the front panel. A special "Front Panel Security Lockout" mode is available for use when a MAV Series matrix switcher must be installed in an unsecured environment. The MAV Series can also be controlled via the optional MKP 2000 and MKP 3000 X/Y remote control panels. Most MAV models are also capable of IR control with the optional IR 501 remote control.

IR 501 Remote

Software Features

All MAV Series matrix switchers are shipped with Extron's Windows®-based control software, which provides a simple, graphical interface for I/O configuration and other customization functions. The control software also includes an emulation mode for configuring an off-site matrix switcher. Once saved, the I/O configuration may be downloaded to the MAV Series switcher through the serial port. Most MAV Series models also support the download of the latest firmware revisions through the serial port, directly from Extron's website (www.extron.com)

APPLICATION DIAGRAM



MAV SERIES

MAV 44 SVA
S-Video & Stereo Audio
Matrix Switcher

4x4 Video & Audio Matrix Switchers

Composite Video	Description	Part Number
MAV 44 AV	Video & Balanced/Unbalanced Stereo Audio	60-553-21
MAV 44 AV RCA	Video & Unbalanced Stereo Audio	60-553-31

S-Video	Description	Part Number
MAV 44 SVA	Video & Balanced/Unbalanced Stereo Audio	60-553-22
MAV 44 SVA RCA	Video & Unbalanced Stereo Audio	60-553-32

NOTE: AV versions support audio on captive screw connectors.
AV RCA versions support audio on RCA connectors.

MAV 48 AV RCA
Composite Video & Stereo Audio
Matrix Switcher

4x8 Video & Audio Matrix Switchers

Composite Video	Description	Part Number
MAV 48 AV	Video & Balanced/Unbalanced Stereo Audio	60-605-21
MAV 48 AV RCA	Video & Unbalanced Stereo Audio	60-605-31

S-Video	Description	Part Number
MAV 48 SVA	Video & Balanced/Unbalanced Stereo Audio	60-605-22
MAV 48 SVA RCA	Video & Unbalanced Stereo Audio	60-605-32

MAV 62 SVA
S-video & Stereo Audio
Matrix Switcher

6x2 Video & Audio Matrix Switchers

Composite Video	Description	Part Number
MAV 62 AV	Video & Balanced/Unbalanced Stereo Audio	60-215-01

S-Video	Description	Part Number
MAV 62 SVA	Video & Balanced/Unbalanced Stereo Audio	60-419-01

MAV 84 SVA RCA
S-Video & Stereo Audio
Matrix Switcher

8x4 Video & Audio Matrix Switchers

Composite Video	Description	Part Number
MAV 84 AV	Video & Balanced/Unbalanced Stereo Audio	60-554-21
MAV 84 AV RCA	Video & Unbalanced Stereo Audio	60-554-31

S-Video	Description	Part Number
MAV 84 SVA	Video & Balanced/Unbalanced Stereo Audio	60-554-22
MAV 84 SVA RCA	Video & Unbalanced Stereo Audio	60-554-32

MAV 88 AV
Composite Video & Stereo Audio
Matrix Switcher

8x8 Video & Audio Matrix Switchers

Composite Video	Description	Part Number
MAV 88 V	Composite Video only	60-555-01
MAV 88 AV	Video & Balanced/Unbalanced Stereo Audio	60-555-21
MAV 88 AV RCA	Video & Unbalanced Stereo Audio	60-555-31

S-Video	Description	Part Number
MAV 88 SVA	Video & Balanced/Unbalanced Stereo Audio	60-555-22
MAV 88 SVA RCA	Video & Unbalanced Stereo Audio	60-555-32

FEATURES

- **150 MHz (-3dB) video bandwidth, fully loaded** – Ensures switching and distribution of video signals without degradation. MAV Series matrix switchers provide a minimum 150 MHz (-3 dB) of video bandwidth at full performance capability when one input drives all outputs.

- **Quad standard** – MAV Series matrix switchers are capable of switching NTSC 3.58, NTSC 4.43, PAL, and SECAM video for worldwide compatibility.

- **Video genlock** – Allows for vertical interval switching and enables smooth, seamless transitions when switching between synchronous video sources.

- **QuickSwitch Front Panel Controller (QS-FPC™)** – The QS-FPC feature allows for touch-of-a-button input and output selection. Extron's QuickSwitch technology virtually eliminates the learning curve usually associated with switching the inputs and outputs of a matrix switcher by using a tactile front panel button for every input and output.

- **View I/O mode** – Easily view which inputs and outputs are actively connected.

- **Global presets** – Frequently used I/O configurations may be saved and recalled either from the QuickSwitch Front Panel Controller or RS-232 serial control. This time-saving feature allows you to set up I/O configurations and store them in memory for future use. (Not available on MAV 62 models)

- **Balanced and unbalanced audio** – Accepts both balanced and unbalanced stereo audio signals on captive screw connectors. The video and RCA audio switchers only accept unbalanced stereo audio on RCA connectors.

- **Audio Input gain and attenuation** – Allows users to set the level of gain or attenuation for each audio input channel, eliminating noticeable differences when switching between sources.

- **Audio breakaway** – Provides the capability to break an audio signal away from its corresponding video signal, allowing the audio channels to be operated as a separate matrix switcher.

- **IR control** – MAV 44, MAV 48, MAV 84, and MAV 88 models can be controlled via the front panel or optional IR 501 remote control.

- **RS-232 control port** – Using RS-232 serial commands, the MAV Series can be controlled and configured via the Extron Windows®-based control program, or integrated into third-party control systems. Extron products use the Simple Instruction Set (SIS™) command protocol, a set of basic ASCII code commands that allow for quick and easy programming. The serial port also makes it easy to install firmware updates.

- **Control software** – Provides a graphical, drag-and-drop interface for I/O configuration and other customization functions via serial control. The software also offers an emulation mode for configuration of an off-site matrix switcher. The I/O configuration may be saved for future downloading to the matrix switcher.

- **Optional remote control** – Optional X/Y control panels, bus control panels, and keypads provide the flexibility to control a MAV Series matrix switcher from a remote location.

MKP 2000

MKP 3000

MCP 1000

- **Front panel security lockout** – Prevents unauthorized use when the matrix switcher is installed in an unsecured environment where easy access is not desirable. In lock-out mode, a special button combination is required to operate the front panel.

- **Internal international power supply** – For worldwide compatibility, all models are equipped with an internal, autoswitching power supply that meets or exceeds all appropriate safety certifications.

MAV Plus Series Matrix Switchers
For larger system designs requiring more inputs & outputs, or require the routing of HDTV, and/or component video, the MAV Plus Series includes 88 models in I/O sizes from 8x8 to 64x64. The MAV Plus Series features backlit I/O selection buttons, audio output volume control, and Extron's exclusive IP Link™ Ethernet monitoring and control technology. Visit the Extron website (www.extron.com) for more information.

ALSO AVAILABLE

MAV Plus 168 HDA
HDTV/Component and Stereo Audio Matrix Switcher

VIDEO — COMPOSITE VIDEO AND S-VIDEO MODELS

Gain ..... Unity
Bandwidth ..... 150 MHz (-3 dB), fully loaded
Differential phase error ..... <0.1° at 3.58 MHz and 4.43 MHz
Differential gain error ..... <0.1% at 3.58 MHz and 4.43 MHz
Crosstalk ..... <-50 dB @ 5 MHz
Switching speed ..... 20 ms (max.)

VIDEO INPUT

Number/signal type
- MAV 44/48/62/84/88 video .. 4, 6, or 8 composite video, depending on model
- MAV 44/48/62/84/88 S-video .. 4, 6, or 8 S-video, depending on model

Connectors
- MAV 44/48/62/84/88 video .. 4, 6, or 8 female BNC, depending on model
- MAV 44/48/62/84/88 S-video .. 4, 6, or 8 female 4-pin mini-DIN, depending on model

Nominal level ..... 1 Vp-p for Y of S-video, and for composite video
0.3 Vp-p for C of S-video
Min./max. levels ..... Analog: 0.4 V to 2.0 Vp-p no offset at unity gain
Impedance ..... 75 ohms
Return loss
- MAV 62 Series ..... <-30 dB @ 5 MHz
- All other models ..... Composite video: <-40 dB @ 0 to 10 MHz
S-video: <-25 dB @ 0 to 10 MHz

DC offset (max. allowable)
- MAV 62 Series ..... 1.5 V
- All other models ..... 5 V

External sync (genlock) ..... 0.2 V to 0.4 Vp-p
Input coupling ..... AC coupling only (except the MAV 62 Series)

VIDEO OUTPUT

Number/Signal type
- MAV 44/48/62/84/88 video .. 2, 4, or 8 composite video, depending on model
- MAV 44/48/62/87/88 S-video .. 2, 4, or 8 S-video, depending on model

Connectors
- MAV 44/48/62/84/88 video .. 2, 4, or 8 female BNC, depending on model
- MAV 44/48/62/84/88 S-video .. 2, 4, or 8 female 4-pin mini-DIN, depending on model

Nominal level ..... 1 Vp-p for Y of S-video, and for composite video
0.3 Vp-p for C of S-video
Min./max. levels ..... 0.4 V to 2.0 Vp-p (follows input)
Impedance ..... 75 ohms
Return loss
- MAV 62 Series ..... <-30 dB @ 5 MHz
- All other models ..... S-video: <-25 dB @ 5 MHz
Composite video: <-40 dB @ 5 MHz

DC offset
- MAV 62 Series ..... ±5 mV max. with input at 0 offset
- All other models ..... 15 mV typical (per output enabled with 70 ohm termination) with input at 0 offset

Switching type ..... Vertical interval

SYNC

Genlock connectors ..... 2 BNC female
Standards ..... NTSC 3.58, NTSC 4.43, PAL, SECAM

AUDIO

Gain
- MAV 44/48/84/88 Series..... Adjustable; the default is unity
- MAV 62 Series..... Unbal. output: 0 dB; bal. output: +6 dB

Frequency response ..... 20 Hz to 20 kHz, ±0.5 dB
THD + Noise..... 0.03% @ 1 kHz, 0.3% @ 20 kHz at nominal level
S/N ..... >90 dB at max. output (unweighted)
Crosstalk..... <-65 dB @ 20 kHz, <-80 dB @ 1 kHz or below 60 Hz, fully loaded
Stereo channel separation
- MAV 62 Series ..... >80 dB @ 1 kHz
- All other models ..... >80 dB @ 20 Hz to 20 kHz

CMRR..... >75 dB @ 20 Hz to 20 kHz

AUDIO INPUT

Number/signal type
- MAV 44/48/84/88 RCA ..... 4 or 8 stereo, unbalanced
- MAV 44/48/62/84/88 Audio .. 4, 6, or 8 stereo, balanced/unbalanced

Connectors
- MAV 44/48/84/88 RCA ..... 4 or 8 pairs of female RCA
- MAV 44/48/62/84/88 Audio..... (4, 6, or 8) 3.5 mm captive screw connectors, 5 pole

Impedance
- MAV 62 Series ..... >10k ohms unbalanced/balanced, DC coupled
- All other models ..... >18k ohms unbalanced, 24k ohms balanced, DC coupled

Nominal level
- MAV 62 Series ..... -10 dBV (316 mV, consumer level)
- All other models ..... Configurable: +4 dBu (1.23 V, professional level) or -10 dBV (316 mV, consumer level)

Max. level
- MAV 62 Series ..... +19.5 dBu (balanced or unbalanced) at 1% THD+N
- All other models ..... >+20 dBu (captive screw models) at 1% THD+N >+14 dBu (RCA models) at 1% THD+N

Input gain adjustment ..... –18 dB to +10 dB, adjustable per input; default = 0 dB.

NOTE: 0 dBu = 0.775 V(rms), 0 dBV = 1 V(rms), 0 dBV ≈ 2 dBu

AUDIO OUTPUT

Number/signal type
- MAV 44/48/84/88 RCA ..... 4 or 8 stereo, unbalanced
- MAV 44/48/62/84/88 Audio .. 2, 4 or 8 stereo, balanced/unbalanced

Connectors
- MAV 44/48/84/88 RCA ..... 4 or 8 pairs of female RCA
- MAV 44/48/62/84/88 Audio .. (2, 4 or 8) 3.5 mm captive screw connectors, 5 pole

Impedance ..... 50 ohms unbalanced, 100 ohms balanced
Gain error..... <±0.1 dB channel to channel
Nominal level ..... Configurable: +4 dBu (1.23 V, professional level) or -10 dBV (316 mV, consumer level)
Max. level (Hi-Z)
- MAV 62 Series ..... >+18 dBu, balanced; >+12 dBu, unbalanced at 1% THD+N
- All other models ..... >+24 dBu, balanced; >+18 dBu, unbalanced at 1%THD+N

Max. level (600 ohm)
- MAV 62 Series ..... >+16 dBm, balanced; >+10 dBm, unbalanced at 1% THD+N
- All other models ..... >+19 dBm, balanced; >+13 dBm, unbalanced at 1% THD+N

CONTROL/REMOTE — SWITCHER

Global Presets
- MAV 62 Series 0
- All other models 16

Serial control port..... RS-232, 9-pin female D connector
Baud rate and protocol..... 9600, 8 data bits, 1 stop bit, no parity
Serial control pin configurations
- MAV 62 Series ..... 2 = TX, 3 = RX, 5 = GND
- All other models ..... 2 = TX, 3 = RX, 5 = GND, 9 = hardwired IR

IR controller module ..... IR 501 remote control (optional) (all models except MAV 62 Series)
Program control..... Extron's control/configuration program for Windows® Extron's Simple Instruction Set (SIS™)

GENERAL

Power..... 100 VAC to 240 VAC, 50/60 Hz, 15 watts, internal, autoswitchable
Rack mount
- MAV 62 Series ..... Yes, with optional 1U rack shelf, part #60-190-01 or 60-604-01
- All other models ..... Yes, with included brackets, part #70-077-03 Also furniture mountable with an optional under-desk mounting kit, part #70-222-01

Enclosure type ..... Metal
Enclosure dimensions
- MAV 62 Series ..... 1.75" H x 8.75" W x 9.5" D (1U high, half rack wide) 4.4 cm H x 22.2 cm W x 24.1 cm D
- All other models ..... 1.75" H x 17.4" W x 8.5" D (1U high, full rack wide) 4.4 cm H x 44.2 cm W x 21.6 cm D (Depth excludes connectors. Width excludes rack ears.)

Product weight
- MAV 62 Series ..... 3.3 lbs (1.5 kg)
- All other models ..... 7.0 lbs (3.2 kg)

Shipping weight
- MAV 62 Series ..... 6 lbs (3 kg)
- All other models ..... 10 lbs (5 kg)

Listings ..... UL, CUL
Compliances
- MAV 62 Series ..... CE
- All other models ..... CE, FCC Class A, VCCI, AS/NZS, ICES

NOTE: All nominal levels are at ±10%.

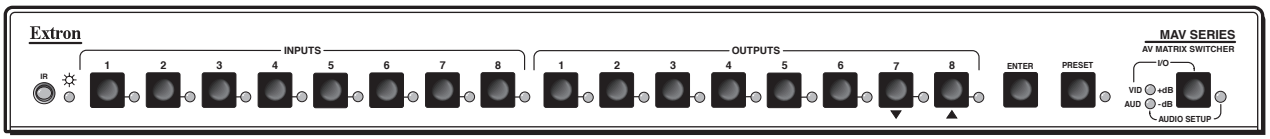
Specifications are subject to change without notice.

MAV FAMILY COMPARISON CHART

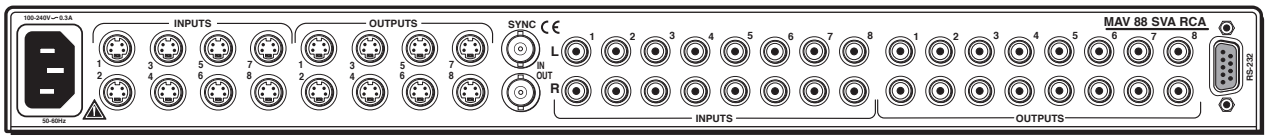
	Features	MAV Series	MAV Plus Series
Video Features	Bandwidth (fully loaded)	150 MHz (-3 dB)	150 MHz (-3 dB)
	Input/output size range	4x4 to 8x8	8x8 to 64x64
	Composite Video	✓	✓
	S-video (4-pin DIN)	✓	
	S-video (Y/C)		✓
	Component Video (Y, R-Y, B-Y)		✓
	HDTV (Y, Pb, Pr)		✓
	RGsB		✓
Audio Features	Stereo Audio only Matrix Switchers		✓
	Balanced/unbalanced stereo audio	✓	✓
	Audio input gain & attenuation	✓	✓
	Audio output volume control		✓
Control Features	QuickSwitch front panel controller (QS-FPC™)	✓	
	Enhanced QS-FPC with tri-color backlit I/O buttons		✓
	Global memory presets	✓ (16)*	✓ (32 or 64)*
	IR remote control (optional)	✓	
	RS-232 serial control	✓	
	RS-232/422 serial control		✓
	IP Link™ Ethernet monitoring and control		✓

*** Not available on MAV 62 models**

PANEL DRAWINGS



MAV 88 SVA RCA (Front)



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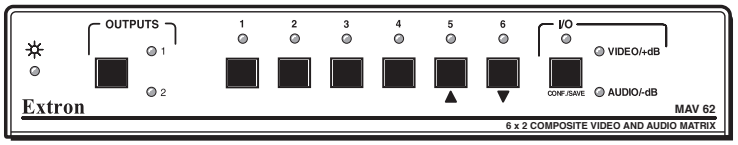
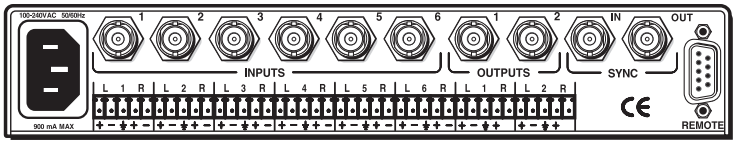


MAV 62 Composite (Front)



MAV 62 Composite (Back)

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